

WEATHER OF NORTH AMERICA AND ADJACENT OCEANS.

NORTH ATLANTIC OCEAN.

By F. A. YOUNG.

The following figures show the average pressure and departure for the month at a number of selected stations on the coast and islands of the North Atlantic. The barometric readings are in inches, for 8 a. m., 75th meridian time, and the departures are only approximate, as the normals were taken from the Pilot Chart, and are based on Greenwich mean noon observations, or 7 a. m., 75th meridian time.

St. Johns, Newfoundland, average 29.82, departure ± 0.00 . Nantucket, 30.15, $+0.08$. Hatteras, 30.15, $+0.03$. Key West, 30.12, $+0.03$. New Orleans, 30.12, ± 0.00 . Swan Island, 29.94, -0.05 . Turks Island, 30.13, $+0.11$. Bermuda, 30.12, $+0.04$. Horta, Azores, 30.35, $+0.18$. Lerwick, Shetland Islands, 29.95, $+0.16$. Valentia, Ireland, 30.05, $+0.12$. London, 29.97, -0.05 .

With the exception of January, December is the stormiest month of the year over the North Atlantic, and judging from reports received, the month under discussion was no exception to the general rule, as over the greater part of the ocean the number of days with winds of gale force did not differ materially from the normal as shown on the Pilot Chart. A number of vessels reported from three to six separate gales of varying intensity, on the trans-Atlantic voyage.

Fog was apparently somewhat less frequent than usual over the Grand Banks, and the number of days on which it occurred over the steamer lanes and off the American and European coasts was not far from the normal.

From the 1st to 8th an area of low pressure was in the vicinity of the European coast, causing turbulent weather over the eastern section of the steamer lanes, although the storm area varied considerably from day to day during this period. Storm logs:

American S. S. Duquesne:

Gale began on the 1st, wind W. Lowest barometer 29.92 inches at noon on the 1st, wind W., 9, in latitude $48^{\circ} 06' N.$, longitude $16^{\circ} 14' W.$ End on the 2d, wind NW. Highest force of wind 9, W.; shifts W.-NW.

British S. S. Bolivian:

Gale began on the 3d, wind W. Lowest barometer 29.44 inches at 3 p. m. on the 3d, wind W., 8, in latitude $50^{\circ} 52' N.$, longitude $23^{\circ} 30' W.$ End at 8 p. m. on the 5th, wind NNW. Highest force of wind 12, W.; shifts W.-NNW.

American S. S. Coelleda:

Gale began on the 5th, wind N. Lowest barometer 29.97 inches at 10 a. m. on the 5th, wind N. 8, in latitude $51^{\circ} 20' N.$, longitude $9^{\circ} 45' W.$ End on the 8th, wind NNW. Highest force of wind 10; shifts SW.-W.-NW.

The daily weather map for the morning of the 5th shows a well-developed area of low pressure over the southern portion of the United States; this moved rapidly northward and on the 6th was central near Buffalo, N. Y. This low was responsible for southerly to westerly gales over a limited area off the coasts of the Carolinas and Georgia, as shown by following storm log:

American S. S. Antilla:

Gale began on the 5th, wind SW. Lowest barometer 29.63 inches at 1 a. m. on the 6th, wind SW., 9, in latitude $32^{\circ} 55' N.$, longitude $77^{\circ} 10' W.$ End on the 6th, wind W. Highest force of wind 9, SW.; shifts SW.-W.

From the 9th to 12th the Icelandic Low appeared to be unusually well developed, and moderate to strong gales prevailed during this period between the 10th and 45th meridians. Storm log:

American S. S. Coelleda:

Gale began on the 9th, wind SW. Lowest barometer 29.32 inches at 8 a. m. on the 9th, wind SW., 8, in latitude $49^{\circ} 50' N.$, longitude $30^{\circ} 30' W.$ End on the 11th, wind WNW. Highest force of wind 10 NW.; shifts SW.-W.-NW.

On the 8th and 9th there was a well-developed disturbance near the Azores, as shown by the following storm logs:

Belgian S. S. Emanuel Nobel:

Gale began on the 8th, wind NE. Lowest barometer 29.83 inches at 2 a. m. on the 8th, wind NE., 10, in latitude $37^{\circ} 57' N.$, longitude $25^{\circ} 08' W.$ End on the 8th, wind NE. Highest force of wind 10; steady NE.

Danish S. S. Dania:

Gale began on the 8th, wind NE. Lowest barometer 29.95 inches at noon on the 8th, wind NE., 7, in latitude $39^{\circ} 53' N.$, longitude $25^{\circ} 15' W.$ End on the 9th, wind ESE. Highest force of wind 8; steady NE.

On the 12th St. Johns, Newfoundland, was near the center of a moderate depression that moved rapidly northward, and on the 12th and 13th a number of vessels encountered gales over the northern steamer lanes, although no unusually heavy winds were reported.

On the 13th and 14th unusual conditions for the winter prevailed in southern waters. On the 13th a vessel near latitude $29^{\circ} N.$, longitude $51^{\circ} W.$, recorded a northerly wind, force 8, barometer 29.91 inches. Unfortunately no other reports have been received for that date from this vicinity, although on the 14th there was undoubtedly a shallow depression central near latitude $30^{\circ} N.$, longitude $45^{\circ} W.$, with northerly to northeasterly gales in the westerly and northwesterly quadrants, while a vessel near latitude $28^{\circ} N.$, longitude $40^{\circ} W.$, reported a southerly wind, force 7. Storm logs:

American S. S. Saguache:

Gale began on the 13th. Lowest barometer 29.90 inches at 9 a. m. on the 13th, wind N., 8, in latitude $29^{\circ} N.$, longitude $50^{\circ} 32' W.$ End on the 15th. Highest force of wind 8, N.; shifts N.-NE.-E.

American S. S. Vincent:

Gale began on the 12th, wind S. Lowest barometer 29.93 inches at 2 p. m. on the 14th, wind N., in latitude $35^{\circ} N.$, longitude $48^{\circ} W.$ End on the 14th, wind ENE. Highest force of wind, 9, N.; shifts S.-N.

On the 14th there were unusually heavy northerly to northeasterly winds, accompanied by comparatively high barometric readings, in the Gulf of Mexico and also in the vicinity of Hatteras.

On the 15th abnormally high pressure prevailed along the American coast, with a shallow depression central near latitude $43^{\circ} N.$, longitude $57^{\circ} W.$ Gales of anticyclonic origin were reported by a number of vessels west of the 65th meridian. Storm log:

American S. S. Coelleda:

Gale began on the 15th, wind NNW. Lowest barometer 29.89 inches at 8 a. m. on the 15th, wind NNW., 9, in latitude $43^{\circ} 12' N.$, longitude $55^{\circ} 15' W.$ End at 11 p. m. on the 15th, wind NNW. Highest force of wind 9; steady NNW.

On the 16th and 17th the general conditions over the ocean were quieter than usual, although on the former date a number of vessels encountered moderate gales in widely scattered localities, while a "norther" prevailed in the Gulf of Mexico. Storm log:

Honduran S. S. Yoro:

Gale began on the 16th, wind NE. Lowest barometer 29.99 inches at 5.30 p. m. on the 16th, wind NNW., in latitude 20° 21' N., longitude 95° 18' W. End on the 17th, wind ESE. Highest force of wind 9; shifts 6 points.

On the 18th two well developed lows appeared; the first in the vicinity of Newfoundland and the second over the North Sea.

On the 19th the eastern low did not appear within the limits of the map, while the movement of the western disturbance was slight during the next 4 days. From the 19th to 21st moderate to strong northerly gales swept over the region between the 30th and 45th parallels and the 55th and 65th meridians. Storm logs:

American S. S. Ophis:

Gale began on the 19th, wind NW. Lowest barometer 30.06 inches at 4 a. m. on the 19th, wind NW., 9, in latitude 33° 20' N., longitude 56° 40' W. End on the 21st, wind NW. Highest force of wind 9, NW.; steady NW.

American S. S. Innoko:

Gale began on the 18th, wind NNW. Lowest barometer 29.82 inches at noon on the 21st, wind NW., 7, in latitude 40° 53' N., longitude 54° 17' W. End on the 21st, wind NW. Highest force of wind 8; shifts NNW.-NW.

On the 23d westerly to southwesterly gales were reported near Hatteras, and the third "norther" of the month made its appearance in the Gulf of Mexico.

On the 24th heavy winds continued along the American coast and storm logs were received from vessels as far east as the 54th meridian. On the same day an area of low pressure covered a portion of Great Britain, accompanied by westerly gales off the southern coast of England.

On the 25th the western disturbance was central near latitude 35° N., longitude 65° W., and winds of gale force were encountered in the vicinity of the Bermudas. Storm log:

British S. S. Bradford City:

Gale began on the 25th, wind SW. Lowest barometer 29.69 inches at 3 p. m. on the 25th, wind SW., 9, in latitude 34° N., longitude 57° 50' W. End on the 27th, wind NW. Highest force of wind 9; shifts SSW.-SW.-WNW.

On the 25th a second depression appeared near latitude 52° N., longitude 55° W., with southerly gales in the easterly quadrants.

On the 26th the western disturbance was central near latitude 42° N., longitude 42° W., while it was impossible to locate the eastern low on account of lack of observations. Storm logs:

British S. S. Aral:

Gale began on the 26th, wind SW. Lowest barometer 29.58 inches at 3 a. m. on the 26th, wind SW., 9, in latitude 41° 20' N., longitude 44° 40' W. End on the 27th, wind SW. Highest force of wind 9; shifts SW.-W.-SW.

American S. S. Conness Peak:

Gale began on the 25th, wind SW. Lowest barometer 29.91 inches at 4 p. m. on the 25th, wind W., 9, in latitude 46° 39' N., longitude 11° 52' W. End on the 28th, wind NW. Highest force of wind 9, NW.; shifts WSW.-W.

Charts VIII to XII show the conditions from the 27th to the 31st, inclusive, during which period the heaviest storms of the month occurred, as the ocean was swept by gale after gale, the wind at times attaining hurricane

force. A glance at the charts will show the different areas of low pressure that caused these conditions, and also how the storm area varied in extent from day to day.

British S. S. Manchester Merchant:

Gale began on the 26th, wind SW. Lowest barometer 29.53 inches at 4 a. m. on the 27th, wind WNW., in latitude 40° 28' N., longitude 49° 02' W. End on the 30th, wind W., 10. Highest force of wind 10; shifts SW.-WNW.-SSW.

British S. S. Galtymore:

Gale began on the 27th, wind SE. Lowest barometer 28.89 inches at 2 a. m. on the 28th, wind WSW., 12, in latitude 48° 28' N., longitude 45° 08' W. End on the 28th, wind WSW. Highest force of wind 12; shifts SSW.-WSW.

French cable S. S. Edouard Jeramec:

Gale began on the 28th, wind SE. Lowest barometer 28.68 inches at 2:30 a. m. on the 29th, wind WNW., in latitude 43° 30' N., longitude 63° 40' W. End on the 30th, wind WNW. Highest force of wind 10; shifts ESE.-SE.-SW.-NW.-WNW.

British S. S. Aral:

Gale began on the 28th, wind SW. Lowest barometer 29.59 inches at noon on the 29th, wind SW., 10, in latitude 36° 30' N., longitude 52° 08' W. End on the 30th, wind NW. Highest force of wind 12; shifts SW.-W.-WNW.

NORTH PACIFIC OCEAN.

By WILLIS E. HURD.

In the report for the preceding month it was indicated that November, as regards the severity of the weather, lay between months having periods of maximum activity. December opened in the Far East with the entrance upon the ocean of an extensive area of high pressure from Mongolia. The North Pacific high was practically normal in location and pressure, and the Aleutian cyclone was central as a major disturbance over the Gulf of Alaska. Between these two great atmospheric pressure extremes of the eastern Pacific a sharp gradient existed which, on December 4, covered a range of 2.31 inches, or between 30.32 and 28.01 inches within latitudes 35° and 50° N., longitudes 155° and 161° W. In consequence of such conditions strong gales to full hurricane winds prevailed along the northern shipping routes to the eastward of the 170th meridian of west longitude from the 1st to the 6th of the month.

During the period of maximum intensity of this storm, which occurred on the 3d to 5th, six vessels encountered winds of hurricane force. These were the Japanese S. S. *Yogen Maru*, the British S. S. *Mongolian Prince*, and the American steamships *Dewey*, *Northwestern*, *President Madison*, and *West Jena*. With the exception of the *West Jena*, these vessels were eastward bound.

The *Yogen Maru*, Capt. G. Kuwana, Observer K. Sato, passed through the heaviest winds on the 3d, direction west-northwest, lowest pressure 28.41 inches, in latitude 50° 50' N., longitude 165° 45' W. The *Mongolian Prince*, Capt. J. Chilvers, Observer H. A. Shaw, experienced gales from the 1st to the 6th, along the 49th parallel, between longitudes 169° W., and 140° W., accompanied by fierce rain, snow, or hail squalls. On the 2d the wind attained a force of 11 from the west-southwest, lowest pressure 28.71 inches, in 49° 16' N., 165° 53' W. On the 4th the highest wind was from the west, force 12, lowest pressure 28.71 inches, in 49° 32' N., 146° 35' W. On the 5th the vessel still was in the terrific gale, highest force 11, west-southwest, with precipitous seas. The wind moderated and pressure rose on the 6th.